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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/720,244

11/25/2003

Naohiro Takeshita

10517/192

4342

23838 7590 09/25/2008

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EXAMINER

WALKER, KEITH D

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/25/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/720,244	TAKESHITA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	KEITH WALKER	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7-13 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-13 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/15/08, 7/31/08, 8/28/08</u> .                               | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/28/08 has been entered.

### ***Response to Amendment***

Claims 1-4, 7-13 & 21 are pending examination as discussed below.

### ***Information Disclosure Statement***

The information disclosure statements filed on 7/15/08, 7/31/08 & 8/28/08 have been placed in the application file and the information referred to therein has been considered as to the merits.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1-4, 7-13 & 21 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the cross-sectional area of the ribs being

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smaller, does not reasonably provide enablement for "wherein a cross-sectional area of a gas path in one cell block being disposed far away from the supply port is larger than that of the gas path in another cell block being disposed adjacent to the supply port."

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make or use the invention commensurate in scope with these claims. The instant specification does not provide the proper amount of direction to one of ordinary skill in the art to make the separator plates with the limitations presented in the claims. Every instance of a cross-sectional area of the gas path is not larger at a far away plate than a plate adjacent the supply port. Since only the ribs change sizes, it is only the cross-sectional areas with the ribs that vary.

Furthermore, no description as to what constitutes "far away" so the disclosure lacks enablement for any size fuel cell. As such, the breadth of the claims is broader than the disclosure and direction provided by the inventor.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 & 21 recite the limitation "the other end portion" in lines 10-11. There is insufficient antecedent basis for this limitation in the claim.

3. Claims 1-4, 7-13 & 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. The term "far away" is unclear and therefore indefinite because it does not provide a description of the features with distinction or sufficient specificity. The term is ambiguous and therefore indefinite.

4. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what part or feature is being addressed by "another end portion". The product described in the parent claim 1 only has two "end portions". So the limitations of this claim are not distinctly claimed so as to comprehend the description of the product.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 & 7-13 & 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-357869 (Hamada) in view of JP Publication 06-267564 (Katsuo).

Hamada teaches a solid high polymer type fuel cell stack in which performance of unit cells at the two ends of the stack are prevented from dropping. The fuel cell stack is structured such that a plurality of unit cells are laid one over another according

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to one of the following: 1) the water repellency of the cathode gas diffusion layer of each unit cell located at the stack ends is made lower than that of the unit cells located elsewhere in the stack; 2) the gas permeability of the cathode gas diffusion layer of each unit cell located at the ends is made higher than that of the unit cells located elsewhere in the stack; 3) the specific surface area of the carbon material of the mixture layer in the cathode of each unit cell located at the ends is made greater than that of the unit cells located elsewhere in the stack; and, 4) the pressure loss in the cathode side gas passage of each unit cell located at the ends is made smaller than that of the unit cells located elsewhere in the stack (abstract). The depth of a separator of a cell unit located at an end of the stack is increased by 10% compared with a gas passageway of a single cell located in other parts of the stack (0031). Reactant gas is supplied from the clamping plates located at both ends of the stack (0013).

Hamada is silent to the discharge port being located on the same side as the supply port. However, it is well known in the art to locate the inlet and the outlet ports on the same side of the fuel cell. Locating the ports on the same side is a design consideration and would allow a fuel cell to fit into spaces while allowing all the components to be accessible on one side. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III)).

Hamada is silent to the cross-sectional area of a gas path disposed far away being larger than a gas path disposed adjacent to the supply port.

Katsuo teaches a gas path for a separator plate having a sloped path such that the depth of the path becomes smaller as the gas travels down stream (Abstract). This configuration allows for proper dispersion of the reactant and therefore the cell reaction to occur in a stable manner.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the separator path of Hamada with the sloped path of Katsuo to improve the fuel cell operation through dispersion of the reactant gas and moving water out of the cathode side of the fuel cell.

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection based on the amendments.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH WALKER whose telephone number is (571)272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K. Walker

/PATRICK RYAN/  
Supervisory Patent Examiner, Art Unit 1795